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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/851,283	05/08/2001	Sanja Durinovic-Johri	1999-0647A	3434

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EXAMINER	
DAVIS, CYNTHIA L.	

ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 09/20/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/851,283	DURINOVIC-JOHRI ET AL.	
	Examiner	Art Unit	
	Cynthia L. Davis	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, filed 6/6/2005, with respect to the 35 USC 112, 2nd paragraph, rejections of claims 1, 6, 8, 10, 16, 18, and 19 have been fully considered and are persuasive. The rejection of the claims has been withdrawn.

2. Applicant's arguments filed 6/6/2005 with respect to the 35 USC 103(a) rejections of claims 1-21 have been fully considered but they are not persuasive. As to the arguments regarding the Rochberger reference, the reference discloses triggering a reroute based on the QoS of the packets (see column 11, lines 39-48, disclosing that for a particular QoS, the optimization percentage for triggering a reroute is preferably uniform, i.e., the QoS determines when the rerouting will occur). Newton's Telecom Dictionary further discloses on pages 675-676 that Quality of Service (QoS) is generally negotiated with a subscriber on an end-to-end basis, i.e., is based on a destination address. Using QoS to determine eligibility for overflow routing is the same as using a destination address to determine eligibility; one value indicates the other.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

3. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuda in view of Rochberger.

Regarding claim 1, a switch, upon detection of congestion on one of the output ports, for outputting the eligible data packet of a plurality of packets from a primary

output path of the one of the output ports corresponding to a destination address of the data to be output, to an overflow path for the destination address is disclosed in Masuda, figure 1, element 18 and column 4, lines 4-12. A memory for storing an eligibility marker, the eligibility marker, wherein the eligibility marker is indicative that a packet of a plurality of packets is eligible for overflow routing based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein not all data packets from the plurality of data packets are eligible for overflow routing, and detection the eligibility marker, are missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the ad at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 2, a congestion detector for detecting when the congestion has abated is disclosed in Masuda, figure 1, element 15. A switch for further switching the output of data from the overflow path back to the primary path for the destination address is disclosed in Masuda, figure 1, element 18, and column 5, lines 46-47 (the path selection unit switches the optimum path on a real time basis, so that when the congestion status monitor detects that congestion has abated, the path selection unit will switch back to the original optimum path).

Regarding claim 3, a memory for storing a forwarding table in the router is disclosed in Masuda figure 1, elements 131 and 132. The information in the routing

table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on the instant congestion levels, sometimes it will be the usual optimum path, sometimes it will not. Masuda, column 8, lines 4-7).

Regarding claim 4, a processor for determining, upon detection of congestion on the one of the output ports, which one of the at least two overflow paths from which to output the data based upon an amount of data currently assigned to be output from each of the at least two overflow paths is disclosed in Masuda, figure 1, element 12 and column 8, lines 30-36 (if buffer overflow occurs, a portion of the data will be temporarily rerouted to another path not containing any congested links).

Regarding claim 5, the processor further determining the amount of data currently assigned to be output from each of the at least two output paths; determining which one of the at least two overflow paths has the least amount of data to be output, and assigning the data to be output from the at least one of the overflow paths having the least amount of data to be output is disclosed in Masuda, figure 1, element 12 and column 8, lines 30-36 (if buffer overflow occurs, a portion of the data will be temporarily rerouted to another path not containing any congested links).

Regarding claim 6, a congestion monitor for monitoring receipt of congestion signals from at least two transmit buffers respectively associated with at least two output ports of the router is disclosed in Masuda, figure 1, element 14. A switch, for all of the

destination addresses in the forwarding table affected by the detection of congestion and eligible for overflow routing, for switching from the primary path to one of the overflow paths for transmitting the data is disclosed in figure 1, element 18 and column 4, lines 4-12. A memory for storing an eligibility marker, the eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein the eligibility marker identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 7, a processor for determining when the congestion has abated based upon status of the congestion signals is disclosed in figure 1, element 14 of Masuda. A switch switching, for all of the destination addresses in the forwarding table switched to overflow routing, from the overflow path back to the primary path when the congestion has abated is disclosed in Masuda, figure 1, element 18 and column 5, lines 46-47 (the path selection unit switches the optimum path on a real time basis, so that when the congestion status monitor detects that congestion has abated, the path selection unit will switch back to the original optimum path).

Regarding claim 8, a memory for storing a forwarding table in the router is disclosed in Masuda, figure 1, elements 131 and 132. The information in the routing table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on the instant congestion levels, sometimes it will be the usual optimum path, sometimes it will not. Masuda, column 8, lines 4-7). A congestion monitor for monitoring receipt of congestion signals from at least two transmit buffers respectively associated with at least two output pods of the router is disclosed in Masuda, figure 1, element 14. A switch for switching, for all of the destination addresses in the forwarding table affected by the detection of congestion and eligible for overflow routing, from the primary path to the overflow path for transmitting the data is disclosed in Masuda, figure 1, element 18 and column 4, lines 4-12. A memory for storing an eligibility marker, the eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein the eligibility marker identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of

Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 9, a processor for determining when the congestion has abated based upon status of the congestion signals is disclosed in Masuda, figure 1, element 14. A switch switching, for all of the destination addresses in the forwarding table switched to overflow routing, from the overflow path back to the primary path when the congestion has abated is disclosed in figure 1, element 18 and column 5, lines 46-47 (the path selection unit switches the optimum path on a real time basis, so that when the congestion status monitor detects that congestion has abated, the path selection unit will switch back to the original optimum path).

Regarding claim 10, a router with at least one input port and at least one output port is disclosed in Masuda, figure 1. A memory for storing a forwarding table is disclosed in figure 1, elements 131 and 132. The information in the routing table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on the instant congestion levels, sometimes it will be the usual optimum path, sometimes it will not. Masuda, column 8, lines 4-7). A controller that detects a destination address for data to be output from the router, monitors congestion status of the at least one output port, and controls the output of the data from the at least one output port based upon the destination address for the data and congestion status of the router is disclosed in

Masuda, figure 1, elements 2, 14, and 18. A memory for storing an eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein the eligibility marker identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, and the controller outputting the data based on the eligibility marker, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 11, the controller switching, upon detection of congestion on the at least one output port, output of the data from a primary output path corresponding to the destination address of the data, to an overflow path for the destination address is disclosed in Masuda, figure 1, elements 14 and 11, and column 4, lines 4-12.

Regarding claim 12, the controller detecting when the congestion has abated is disclosed in Masuda, figure 1, element 14. Switching the output of the data from the overflow path back to the primary path for the destination address is disclosed in figure 1, element 11 and column 5, lines 46-47 (the path selection unit switches the optimum path on a real time basis, so that when the congestion status monitor detects that congestion has abated, the path selection unit will switch back to the original optimum path).

Regarding claim 13, the overflow eligibility marker supplies identification information to the controller, and wherein the controller stores the identification information in the appropriate entries of the forwarding table based upon the destination addresses is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS. It would have been obvious to one skilled in the art at the time of the invention to store the Qos-based rerouting information in the routing tables in the system of Masuda. The motivation would be to keep the rerouting information in a convenient place in the router.

Regarding claim 14, an overflow route calculator that determines the at least one overflow path for each of the destination addresses identified by the overflow eligibility marker is disclosed in Masuda, figure 1, element 11.

Regarding claim 15, an overflow route populator that populates the forwarding table under control of the controller is disclosed in figure 1, element 11, which writes the current optimum path to the H/W table, figure 1, element 132 .

Regarding claim 16, a router comprising at least one input port and at least one output port is disclosed in Masuda, figure 1. Means for storing a forwarding table is disclosed in Masuda, figure 1, elements 131 and 132. The information in the routing table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on the instant congestion levels, sometimes it will be the usual optimum path, sometimes it

will not. Masuda, column 8, lines 4-7). Means for identifying the destination addresses that are eligible for overflow routing is disclosed in is disclosed in Masuda, column 10, lines 40-55 (based on priority and costs associated with each link, some addresses may not be eligible for rerouting). Storing the identification information in the appropriate entries of the forwarding table based upon the destination addresses is disclosed in Masuda, figure 1, element 11, which writes to the H/W table, figure 1, element 132. Determining the at least one overflow path for each of the destination addresses identified as being eligible for overflow routing, and storing, in the forwarding table, information for the at least one overflow path for each of the destination addresses eligible for overflow routing is disclosed in Masuda, figure 1, element 11, and column 4, lines 4-12 (there is a set of path candidates which can be used for overflow routing). An eligibility marker stored in the router, the eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein the eligibility marker identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 17, means arranged to detect a destination address for data to be output from the router is disclosed in figure 1, element 2. Monitoring congestion status of the at least one output port is disclosed in figure 1, element 14. Controlling the output of the data from the at least one output port based upon the destination address for the data, the information in the forwarding table corresponding to the destination address, and congestion status of the router is disclosed in figure 1, elements 11 and 18, and column 4, lines 4-12.

Regarding claim 18, an apparatus comprising at least one input port and at least one output port is disclosed in Masuda, figure 1. A memory for storing a forwarding table is disclosed in Masuda, figure 1, elements 131 and 132. The information in the routing table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on the instant congestion levels, sometimes it will be the usual optimum path, sometimes it will not. Masuda, column 8, lines 4-7). A controller that detects a destination address for data to be output from the apparatus, monitors congestion status of the at least one output pod, and controls the output of the data from the at least one output port based upon the destination address for the data and congestion status of the apparatus is disclosed in Masuda, figure 1, elements 2, 14, and 18, and column 4, lines 4-12. A memory for storing an eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination

address, wherein the eligibility marker identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, and the controller outputting the data based on the eligibility marker, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 19, a congestion monitor for monitoring congestion status on each output port of the router wherein the congestion status is one of a plurality of levels of congestion is disclosed in Masuda, figure 1, element 14. A congestion detector for detecting a level of congestion from the plurality of levels of congestion on at least one output port of the router is disclosed in Masuda, figure 1, element 15. A processor for determining an amount of data to be overflowed based upon the level of congestion and for switching, upon detection of the one of the plurality of levels of congestion on the at least one output pod, the amount of data to be overflowed from a primary output path of the at least one output port corresponding to a destination address of the data to be output, to an overflow path for the destination address is disclosed in Masuda, figure 1, element 18 and column 8, lines 30-36 (if buffer overflow occurs, a portion of the data will be temporarily rerouted to another path not containing any congested links). A memory for storing an eligibility marker based upon a network policy and at least one of a source port ID, a source IP address, and a destination address, wherein the eligibility marker

identifies destination addresses that are eligible for overflow routing, wherein not all destination addresses are eligible for overflow routing, and the controller outputting the data based on the eligibility marker, is missing from Masuda. However, Rochberger discloses in column 11, lines 46-48, a router storing eligibility for rerouting that is based on QoS, which is based upon the destination address. It would have been obvious to one skilled in the art at the time of the invention to base eligibility for rerouting on QOS in the system of Masuda. The motivation would be to reroute higher priority traffic first, to ensure its particular guaranteed QoS.

Regarding claim 20, a congestion detector for further detecting when the level of congestion has abated is disclosed in Masuda, figure 1, element 14. A processor switching the output of the at least one output port from the overflow path back to the primary path for the destination address is disclosed in figure 1, element 11 and column 5, lines 46-47 (the path selection unit switches the optimum path on a real time basis, so that when the congestion status monitor detects that congestion has abated, the path selection unit will switch back to the original optimum path).

Regarding claim 21, a memory for storing a forwarding table in the router is disclosed in Masuda, figure 1, elements 131 and 132. The information in the routing table together with the tree table make up a forwarding table for the network, containing information regarding destination addresses in the network (column 5, lines 36-7), and identifying at least two output paths from the router for at least some of the destination addresses (the H/W table holds whichever optimum path has been selected based on

the instant congestion levels, sometimes it will be the usual optimum path, sometimes it will not. Masuda, column 8, lines 4-7).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cynthia L. Davis whose telephone number is (571) 272-3117. The examiner can normally be reached on 8:30 to 6, Monday to Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (571) 272-3155. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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